

TCXO3277

SMD 3.2 x 2.5 mm 28.800000 MHz TCXO

## Features

- Ultra Miniature SMD Package
- Good Frequency Stability
- Good Phase Noise Response

RoHS Compliant  
Lead free  
Lead-free soldering

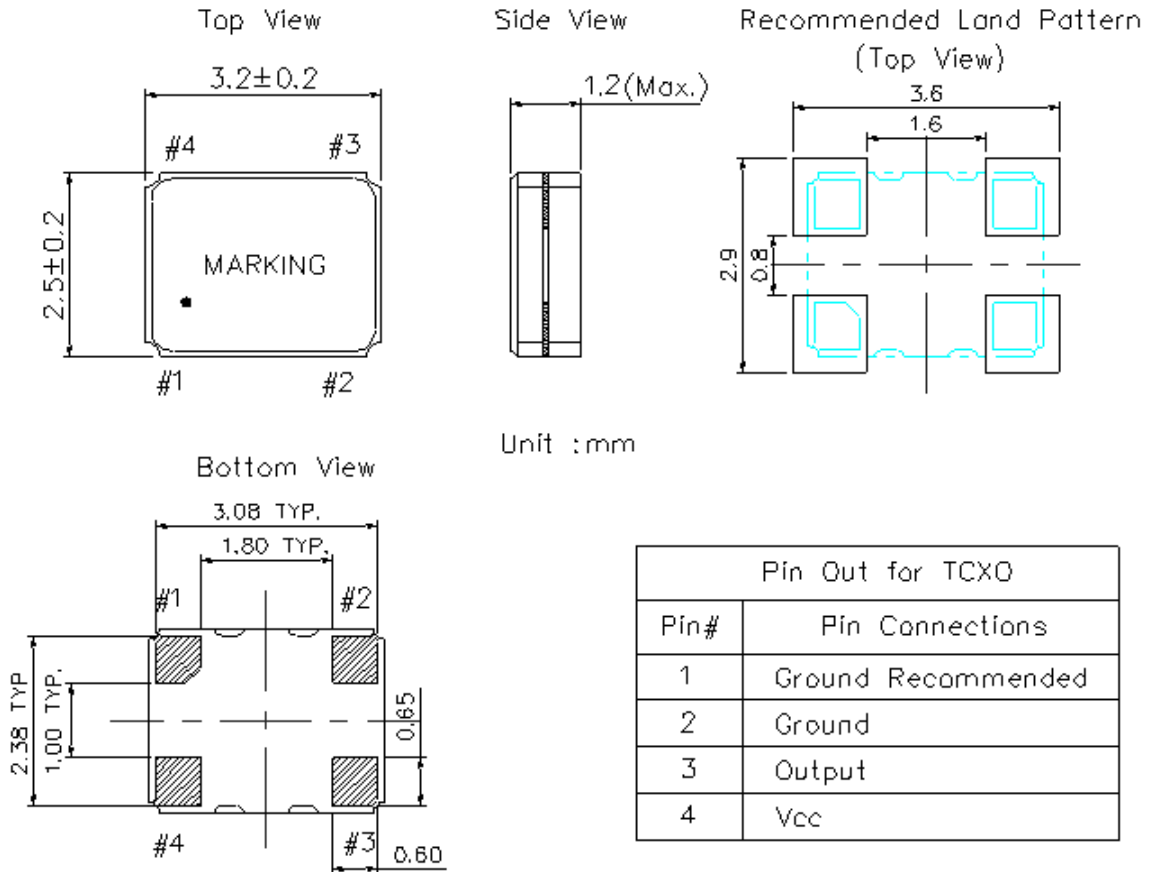
## Description and Applications

Surface mount 3.2mmx2.5mm TCXO for Two-way Radio for Civil Police and Fire Departments

## Electrical Specifications

	Specifications
Nominal Frequency, Fo	28.800000 MHz
Storage Temperature Range	-40°C to +85°C
Operating Temperature Range	-40°C to +85°C
Power Supply Voltage, Vdd	3.00 V $\pm$ 5%
Output Voltage with Load 10pF//10K $\Omega$ , Vout	0.8 Vp-p min
Output Waveform	Clipped Sinewave
Power Supply Current, Icc	10.0 mA max
DC Terminal Input Impedance	100K ohms min
Frequency Tolerance after reflow	+/- 1 ppm max @ 25°C +/- 3°C
Frequency Stability a. Vs. Temperature (-40~85°C) b. Vs. Load varied 10pF//10K $\Omega$ +/-10% c. Vs. Supply Voltage varied 3.00V+/-5%	+/- 0.5 ppm ref. to the middle point between minimum and maximum frequency value +/- 0.2 ppm +/- 0.2 ppm
Aging / yr ( after 30 days continuous operation)	+/- 0.5 ppm/yr
Overall ppm( Aging, temp, load, supply, reflow )	<= +/- 6.0 ppm over life of product in field
Frequency versus Control Voltage	+/- 4 ppm min. to +/- 6 ppm max. (1.5V +/- 1.5V)
Phase Noise ( dBc/Hz )	10 Hz -85 ; 100 Hz -110; 1KHz -129; 10K -134
<b>**NOTE:</b> Our customer will be able to reduce ppm/volt sensitivity via voltage divider circuit on their motherboard if supplier requires wider range on Frequency vs. Voltage	

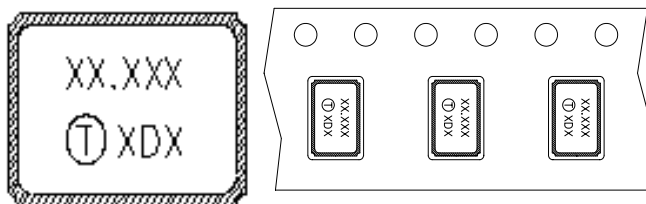
**Mechanical Dimensions (mm) (Pin 1 required for Control Voltage function)**



Pin Out for TCXO	
Pin #	Pin Connections
1	Ground Recommended
2	Ground
3	Output
4	Vcc

**Marking**

Line 1: Customer Frequency (16.367)  
 Line 2: Logo + Crystal Product Code + Date Code



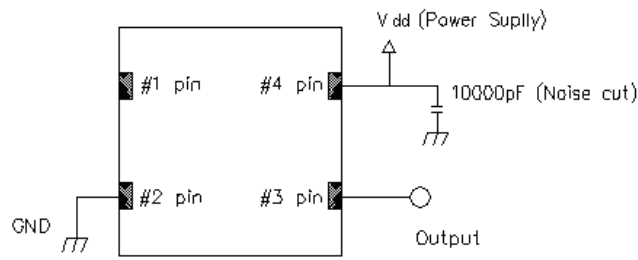
**Product Code Table**

Year	2005 2009	2006 2010	2007 2011	2008 2012
Product Code	X	x	<u>X</u>	<u>x</u>

**Date Code Table**

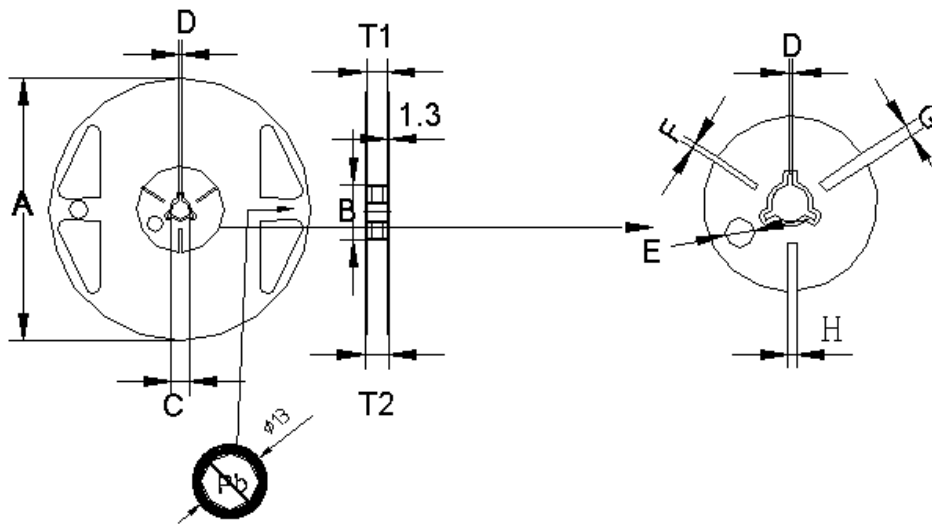
WK01	WK02	WK03	WK04	WK05	WK06	WK07	WK08	WK09	WK10	WK11	WK12	WK13
A	B	C	D	E	F	G	H	I	J	K	L	M
WK14	WK15	WK16	WK17	WK18	WK19	WK20	WK21	WK22	WK23	WK24	WK25	WK26
N	O	P	Q	R	S	T	U	V	W	X	Y	Z
WK27	WK28	WK29	WK30	WK31	WK32	WK33	WK34	WK35	WK36	WK37	WK38	WK39
a	b	c	d	e	f	g	h	i	j	k	l	m
WK40	WK41	WK42	WK43	WK44	WK45	WK46	WK47	WK48	WK49	WK50	WK51	WK52
n	o	p	q	r	s	t	u	v	w	x	y	z

**Recommended Circuit**



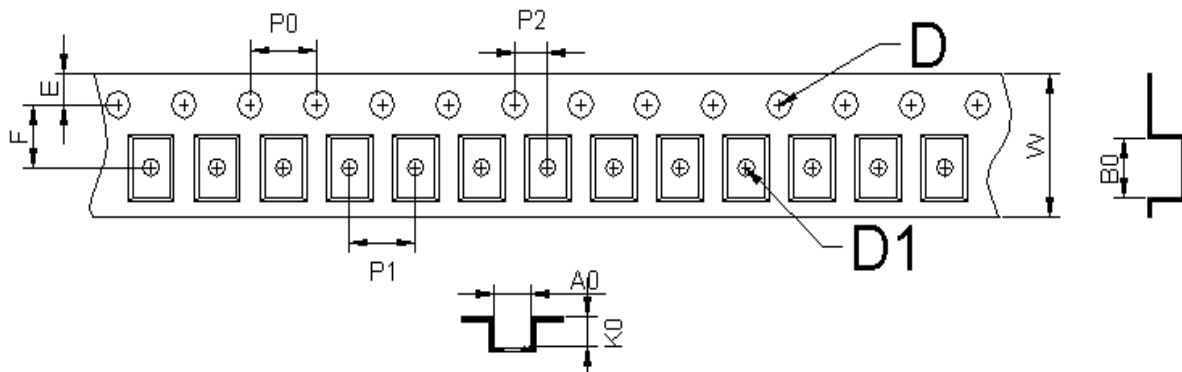
**Packing (mm)**

**1. Reel Dimension**



	A	B	C	D	E	F	H	G	T2	T1	T3
Dimensions	180	60	13.0	2.0	9.1	2.9	3.9	4.9	11.4	9.0	1.2
Tolerance	±1.0	+1.0	±0.2	±0.5	±0.5	±0.5	±0.5	±0.5	±1.0	±0.3	±0.1

**2. Tape Dimension**



Unit: mm	A0	B0	W	F	E	P0	P1	P2	D1	D	K0	t
Dimension	2.80	3.71	8.00	3.5	1.75	4.00	4.00	2	1.50	1.0	1.75	0.25
Tolerance	±0.1	±0.1	+0.3/-0.1	±0.05	±0.1	±0.1	±0.1	±0.05	+0.1/-0.00	+0.25/-0.00	±0.1	±0.02

## Environmental Requirements: On Customer Motherboard in Radio

1. MIL STD 202F Method 213B Test Condition K  
SHOCK 30G's, 11 mS, SAWTOOTH, 5.3 ft/sec
2. MIL STD 202F Method 201A  
Vibration : 0.03 inches Amplitude 10 to 55 Hz 1 minute cycles

## Notes of the Storage:

1. To keep products under the condition at the room temperature (-5~35 deg C) with normal humidity (45~75%). Absorption of moisture and dewdrop may make inferiority of characteristics and a short circuit.
2. Oxidization of terminals shall make the solderability more inferior. Dusts and corrosive gas will make a cause of the open or short circuit. Keep it in the clean place where is not in dusty and no corrosive gas.
3. Use the anti-static material to the storage package.
4. Don't put any excess weight to the TCXO in the storage process.
  
5. Don't move the product from the cold place to the hot place in the short time, otherwise it may make some dew-drop, then a short circuit may happen in case.
6. Storage periods should be maximum 6 months under condition of above item 1 after delivery from factory.
7. Once open the bag, there is possibility of electrical characteristics deterioration due to absorption of moisture. So, please use parts within 7 days after opening the bag.
8. If you have to keep parts without using after opening the bag, please put the drying agent in the bag, fold the bag and keep it in the place where temperature and humidity are controlled (nitrogen atmosphere box etc.)